

What is claimed is:

1. A speaker apparatus comprising a diaphragm and a magnetic circuit, wherein the diaphragm has a positioning portion for positioning the diaphragm relative to the magnetic circuit.
2. The speaker apparatus according to claim 1, wherein the positioning portion positions the diaphragm relative to the magnetic circuit by engaging a jig projecting through a center hole of the magnetic circuit.
3. The speaker apparatus according to claim 2, wherein the diaphragm is supported at a predetermined position by the jig engaging with the positioning portion.
4. The speaker apparatus according to claim 1, further comprising a coil and a damper, wherein the damper has an electric signal supply portion electrically connected to the coil.
5. The speaker apparatus according to claim 1, wherein a center cap is formed integrally with said diaphragm.

6. A speaker apparatus comprising:
a diaphragm;
a magnetic circuit; and
a positioning member fixed to the diaphragm for positioning the diaphragm relative to the magnetic circuit.
7. The speaker apparatus according to claim 6, wherein the positioning member includes a diaphragm positioning portion for positioning the diaphragm relative to the magnetic circuit by engaging a jig projecting through a center hole of the magnetic circuit.
8. The speaker apparatus according to claim 6, wherein the positioning member has a jointing portion for jointing the positioning member with a coil.
9. The speaker apparatus according to claim 6, further comprising a coil and a damper, wherein the damper has an electric signal supply portion electrically connected to the coil.
10. The speaker apparatus according to claim 6, wherein a center cap is formed integrally with the diaphragm.

11. A method for manufacturing a speaker apparatus comprising the steps of:
- fixing a magnetic circuit to a frame;
- positioning a coil with respect to a center pole of the magnetic circuit;
- connecting a damper to the coil and the frame;
- projecting a jig from a center hole of the center pole;
- engaging a positioning portion provided on a diaphragm with the jig to position the diaphragm at a predetermined position with respect to the center pole; and
- connecting the positioned diaphragm to the coil and the frame.
12. The method according to claim 11, further comprising the step of electrically connecting an electricity supply portion of the damper to the coil.
13. The method according to claim 11, wherein a center cap is formed integrally with the diaphragm.

14. A method for manufacturing a speaker apparatus comprising the steps of:

fixing a magnetic circuit to a frame;

positioning a coil with respect to a center pole of the magnetic circuit;

connecting a damper to the coil and the frame;

projecting a jig from a center hole of the center pole;

engaging a positioning member with the jig for positioning the diaphragm at a predetermined position with respect to the center pole;

fixing the diaphragm to the positioning member; and

connecting the fixed diaphragm to the coil and the frame.

15. The method according to claim 14, further comprising the step of electrically connecting an electricity supply portion of the damper to the coil.

16. The method for producing a speaker apparatus according to claim 14, wherein a center cap is formed integrally with the diaphragm.

17. A speaker apparatus comprising:
- a frame having a magnetic circuit;
- a voice coil bobbin installed in the frame to be magnetically coupled to the magnetic circuit; and
- a diaphragm movably installed in the frame and fixed to the voice coil bobbin so as to be driven by activating the magnetic circuit, the diaphragm further having a positioning portion used for securing the diaphragm relative to the magnetic circuit during an installation of the diaphragm in the frame.
18. The speaker apparatus according to claim 17, wherein the magnetic circuit has a center hole, and
- wherein the positioning portion is shaped such that, during the installation of the diaphragm in the frame, the positioning portion engages with a jig that is inserted into the center hole and projected therefrom to secure the diaphragm relative to the magnetic circuit.
19. The speaker apparatus according to claim 17, further comprising a flexible damper movably connecting the voice coil bobbin to the frame, wherein the flexible damper has an electric current supply portion electrically connected to a coil of the voice coil bobbin..
20. The speaker apparatus according to claim 17, wherein a center cap is integrated into the diaphragm as one-piece.

21. A speaker apparatus comprising:
- a frame having a magnetic circuit;
 - a voice coil bobbin installed in the frame to be magnetically coupled to the magnetic circuit of the frame;
 - a diaphragm movably installed in the frame; and
 - a support member connecting the diaphragm to the voice coil bobbin, the support member having a positioning portion used for securing a predetermined position of the diaphragm relative to the magnetic circuit during an installation of the diaphragm in the frame.
22. The speaker apparatus according to claim 21, wherein the magnetic circuit has a center hole, and
- wherein the positioning portion is shaped such that, during the installation of the diaphragm in the frame, the positioning portion engages with a jig that is inserted into the center hole and projected therefrom to secure the predetermined position of the diaphragm relative to the magnetic circuit.
23. The speaker apparatus according to claim 21, further comprising a flexible damper movably connecting the voice coil bobbin to the frame, wherein the flexible damper has an electric current supply portion electrically connected to a coil of the voice coil bobbin.
24. The speaker apparatus according to claim 21, wherein a center cap is integrated into the diaphragm as one-piece.

25. The speaker apparatus according to claim 21, wherein the support member has a first engaging portion and a second engaging portion, the first engaging portion engaging with the voice coil bobbin to define a positional relationship between the support member and the voice coil bobbin, the second engaging portion engaging with the diaphragm to define a positional relationship between the support member and the diaphragm.

114-1 秘密 防衛省

WA01A/187585 1

28